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09/841,698	04/24/2001	Galina Troyanova	IMC-41U	4398

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EXAMINER

- SPOONER, LAMONT M

ART UNIT	PAPER NUMBER
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2654

DATE MAILED: 12/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/841,698

Applicant(s)

TROYANOVA ET AL

Examiner

Lamont M. Spooner

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 2, 4-12, 14-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-12 and 14-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 April 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see remarks, filed 9/01/05, with respect to the rejection(s) of the claim(s) under 35 USC 102 and 103 have been fully considered and are persuasive, wherein the prior art of record does not explicitly teach the amended limitations, "wherein the expansion section interacts with an action dictionary of synonyms that includes a list of "verb-noun" expressions that are synonymous with other verbs;" Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1, 2, 4-12, and 14-24 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

More specifically, in claims 1 and 11, "wherein the expansion section interacts with an action dictionary of synonyms that includes a list of "verb-noun" expressions that are synonymous with other verbs" is not taught in the specification. The Examiner notes, p.6 of the specification, and the remarks citing p.6, line 25 of the subject

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application, however in this section, the "List of "verb - noun" expressions relevant to action in module 230 – "increase - temperature" rise - temperature" and etc., explains synonyms to the verb in the expression. The Examiner is unable to locate where the "verb-noun" expressions are synonymous with other verbs.

4. Claims 2, 4-10, and 12-24 are rejected as their parent claims have been rejected.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 2, 4-12, and 14-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bhandari et al. (herein referred to as Bhandari, US Patent No. 5,895,464 Apr. 20, 1999) in view of Messerly et al. (Messerly, US 6,246,977).

7. Bhandari and Messerly are analogous art in that they are related to query expansion.

8. As per **claims 1 and 11**, Bhandari et al. discloses a computer system for searching a database, comprising:

an input section responsive to user entry of a user query (C.3.lines 26, 27, C.6.lines 43-45, Fig. 5-itemS S29, S30-"INPUT USER QUERY", "NATURAL LANGUAGE PROCESSING OF QUERY", Fig. 6- query frame representation);

an expansion section responsive to the input section, for expanding the user

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query to include synonyms of action words and object words in the user query (C.7.lines 18-26, FIG 6-item S42, "GENERATE EXPANDED QUERY FRAMES");

a validation section responsive to said expansion section (C.7.lines 12-23-validation and expansion are included in selecting a set of appropriate words), and arranged for interaction with a subject-action-object knowledge database (SAO KB), (C.7.lines 12-23-WordNet-is interpreted to be the SAO KB as WordNet contains fields with subjects, actions and objects, as on-line retrievable organized sets) containing fields with subjects, actions, objects, for selecting only those queries having corresponding expressions in the SAO KB (C.7.lines 12-23-"adding a set of appropriate words"-only the words having the expressions in WordNet are selected, it is inherent in selecting only appropriate expanded words from the SAO KB, words are validated upon selection, and invalidated upon rejection due to inappropriateness).

an output section for transmitting selected queries for searching in the database (C.7.lines 32, 33),, but lacks:

wherein the expansion section interacts with an action dictionary of synonyms that includes a list of "verb-noun" expressions that are synonymous with other verbs.

However, Messerly teaches the expansion section (Fig. 2 item 240-his facility as the expansion section) interacts with an action dictionary of synonyms (Fig. 2 item 242-his linguistic knowledge base-C.4.line 66-C.5.line 10) that includes a list of "verb-noun" expressions (C.3.lines 35-37, C.9.lines 48-67, C.10.lines 25-30-his index as the list, his phrase locations, and expanded logical forms as the list of "verb-noun" expressions) that are synonymous with other verbs (Fig. 8 his hug, massage, kiss, kick, touch as

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action dictionary of synonyms, Fig. 12-as his list-ie kiss, pig or touch, pig). Therefore, at the time of the invention, it would have been obvious to modify Bhandari's synonymic dictionary with an action dictionary with an index of "verb-noun" expressions. The motivation for doing so would have been to have having tokens intelligible by an information retrieval systems that compares the tokenized query to an index (C.2.lines 38-41), thereby having an expanded query search including action synonyms as related to an expressions.

As per **claims 2 and 12**, Bhandari and Messerly make obvious all of the limitations of claim 1, upon which claim 2 depends. Bhandari further discloses:

said entry section includes an analysis portion for separating actions from objects (C.4.lines 35-46-natural language processing section, Fig. 5 item S30, C.5.-C.6.line 15-the input is subject to Natural Language Processing (NLP) which parses and separates the actions from objects).

As per **claims 4 and 14**, Bhandari and Messerly make obvious all of the limitations of claim 1, upon which claim 4 depends. Bhandari further discloses:

said validating section includes an output portion for outputting validated results and rejecting non-validated results (C.7.lines 12-15-in determining "appropriate words" the validating section outputs the validated search results, and rejects non-validated results, it is inherent in selecting only appropriate expanded words from the SAO KB, words are validated upon selection, and invalidated upon rejection due to inappropriateness).

As per **claims 5 and 15**, Bhandari and Messerly make obvious all of the limitations of claim 1, upon which claim 5 depends. Bhandari further discloses:

- action dictionary of synonyms having:

- a list of verbs with similar sense (C.7.lines 22, 23-WordNet);

- a list of "verbsA" including the verbs-perform, carry out, realize, and other verbs with similar sense (C.7.lines 15-23-WordNet is comprehensive, the verbs taken to include: perform, carry out, realize);

- a list of "verb-relevant verbal nouns" (C.7.lines 15-23, WordNet is comprehensive, to include "verb-relevant verbal nouns");

- a list of "verbsB" including the verbs-produce, create, form, and other verbs with similar sense (C.7.lines 15-23, WordNet-is comprehensive, to include "verbsB-produce, create, form and other verbs with similar sense); and

- a list of "participle2" words including "verb--relevant participles" (C.7.lines 15-23-WordNet is comprehensive to include "participle2" words including "verb-relevant participles").

As per **claims 6 and 16**, Bhandari and Messerly make obvious all of the limitations of claim 5, upon which claim 6 depends. Bhandari further discloses:

- said expansion section includes an action expansion portion responsive to said action dictionary of synonyms and to an action word for forming:

- a list of verbs relevant to an action (C.15.lines 17-23-WordNet is comprehensive to inherently include verbs relevant to an action);

a list of "verbsA--verbal noun" expressions relevant to an action (C.7.lines 15-23-WordNet includes a comprehensive dictionary set of synonymous verbal noun expressions);

a list of "verbsB--participle2" expressions relevant to an action (C.7.lines 15-23-WordNet is comprehensive to include "participle2" expressions relevant to an action);
but lacks:

a list of "verb--noun" expressions relevant to an action.

However, Messerly teaches a list of "verb--noun" expressions relevant to an action. (C.3.lines 35-37, C.9.lines 48-67, C.10.lines 25-30-his index as the list, his phrase locations, and expanded logical forms as the list of "verb-noun" expressions) that are synonymous with other verbs (Fig. 8 his hug, massage, kiss, kick, touch as action dictionary of synonyms, Fig. 12-as his list-ie kiss, pig or touch, pig). Therefore, at the time of the invention, it would have been obvious to modify Bhandari's synonymic dictionary with an action dictionary with an index of "verb-noun" expressions. The motivation for doing so would have been to have having tokens intelligible by an information retrieval systems that compares the tokenized query to an index (C.2.lines 38-41), thereby having an expanded query search including action synonyms as related to an expressions.

.As per **claims 7 and 17**, Bhandari and Messerly make obvious discloses all of the limitations of claim 1, upon which claim 7 depends. Bhandari further discloses:

said expansion section interacts with a dictionary of object synonyms (C.7.lines 15-23-WordNet-noun synonym set).

As per **claims 8 and 18**, Bhandari and Messerly make obvious all of the limitations of claim 1, upon which claim 8 depends. Bhandari further discloses:

said expansion section interacts with a dictionary of object synonyms (C.7.lines 15-23-WordNet and query expander), said action dictionary of object synonyms containing groups of objects having similar sense (C.7.lines 15-23), and an object expression portion to form lists of expressions synonymous from an object and the dictionary of objects synonyms (C.7.lines 15-23-WordNet includes a comprehensive list of expressions synonymous from an object and the dictionary of objects synonyms).

As per **claims 9 and 19**, Bhandari and Messerly make obvious all of the limitations of claim 1, upon which claim 9 depends. Bhandari further discloses:

said validation section includes the fields: subjects, actions, objects, and "main parts of objects" and classifies the query on the basis of the fields in response to the expansion section and in response to the SAO KB (C.7.lines 13-33-validation section, which determines the appropriate words includes the subject, action, object, and "main parts of objects", C.7.lines 25-33-the query is classified based on a role, based on the fields, Fig. 4 item S26-role parser, C.5.-C.6.line 54).

As per **claims 10 and 20**, Bhandari and Messerly make obvious all of the limitations of claim 6, upon which claim 10 depends. Bhandari further discloses:

wherein said expansion section interacts with a dictionary of object synonyms (C.7.lines 13-17), said action dictionary of object synonyms containing groups of objects having similar sense and an object expression portion to form lists of expressions synonymous from an object and the dictionary of objects synonyms (C.7.lines 13-23),

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and said validation section includes the fields: subjects, actions, objects, and "main parts of objects" and classifies the query on the basis of the fields in response to the expansion section and in response to the SAO KB (C.7.lines 13-33-validation section, which determines the appropriate words includes the subject, action, object, and "main parts of objects", C.7.lines 25-33-the query is classified based on a role, based on the fields, Fig. 4 item S26-role parser, C.5.-C.6.line 54).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 21-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bhandari et al in view of Messerly, and further in view of Rohra Suda et al. (herein after referred to as Rohra Suda, US Patent No. 5,282,265 Jan. 25, 1994).

11. Bhandari, Messerly and Rohra Suda are analogous art in that they both involve language processing including search and retrieval of information.

As per **claim 21**, Bhandari and Messerly make obvious all of the limitations of claim 1, upon which claim 21 depends, but lack wherein said SAO KB contains data prepared from texts in a discipline corresponding to the discipline of the query.

However, Rohra Suda et al. teaches having a knowledge base which contains data prepared from texts in a discipline corresponding to the discipline of the query (C.5.line 63-C.6.line 13). Therefore, at the time of the invention, it would have been

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obvious to one ordinarily skilled in the art to Bhandari with Rohra Suda by including a domain within a knowledge base. The motivation for doing so would have been to retrieve an appropriate plan for generating a related query search with respect to the query domain (C.6.lines 15-19).

As per **claim 22**, Bhandari and Messerly make obvious all of the limitations of claim 1, upon which claim 22 depends, but lacks wherein said SAO contains data prepared from texts in a discipline corresponding to the discipline of the query.

However, Rohra Suda teaches said SAO contains data prepared from texts in a discipline corresponding to the discipline of the query (C.5.line 63-C.6 line 13).

Therefore, at the time of the invention, it would have been obvious to one ordinarily skilled in the art to Bhandari with Rohra Suda by including a domain within a knowledge base. The motivation for doing so would have been to retrieve an appropriate plan for generating a related query search with respect to the query domain (C.6.lines 15-19).

As per **claim 23**, Bhandari and Messerly make obvious all of the limitations of claim 1, upon which claim 23 depends, but lacks wherein said SAO KB contains only data prepared from texts in a discipline corresponding to the discipline of the query.

However, Rohra Suda et al. teaches having a knowledge base which contains only data prepared from texts in a discipline corresponding to the discipline of the query (C.5.line 63-C.6.line 13, Fig. 12A). Therefore, at the time of the invention, it would have been obvious to one ordinarily skilled in the art to Bhandari with Rohra Suda by including a domain within a knowledge base. The motivation for doing so would have

been to retrieve an appropriate plan for generating a related query search with respect to the query domain (C.6.lines 15-19).

As per **claim 24**, Bhandari and Messerly make obvious all of the limitations of claim 1, upon which claim 24 depends, but lacks wherein said SAO contains only data prepared from texts in a discipline corresponding to the discipline of the query.

However, Rohra Suda teaches said SAO contains only data prepared from texts in a discipline corresponding to the discipline of the query (C.5.line 63-C.6 line 13, 42-64). Therefore, at the time of the invention, it would have been obvious to one ordinarily skilled in the art to Bhandari with Rohra Suda by including a domain within a knowledge base. The motivation for doing so would have been to retrieve an appropriate plan for generating a related query search with respect to the query domain (C.6.lines 15-19).

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lamont M. Spooner whose telephone number is 571/272-7613. The examiner can normally be reached on 8:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on 571/272-7602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

lms
11/26/05



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